

WHAT IS CLAIMED IS:

1 1. A field emission display, comprising:
2 a first substrate;
3 an electron emission assembly arranged on said first substrate;
4 a second substrate arranged a predetermined distance from said first substrate, said first and
5 second substrates forming a vacuum space;
6 an illumination assembly arranged on said second substrate, said illumination assembly
7 being illuminated by electrons emitted from said electron emission assembly; and
8 a mesh grid arranged above said electron emission assembly.

1 2. The field emission display of claim 1, wherein said mesh grid comprises a metal.

1 3. The field emission display of claim 1, wherein said mesh grid comprises one of
2 stainless steel, invar, and an iron-nickel alloy.

1 4. The field emission display of claim 3, wherein the iron-nickel alloy comprises 2.0
2 to 10.0 wt% of Cr.

1 5. The field emission display of claim 3, wherein the iron-nickel alloy comprises 40.0
2 to 44.0 wt% of Ni.

1 6. The field emission display of claim 3, wherein the iron-nickel alloy comprises 0.2
2 to 0.4 wt% of Mn, 0.7 wt% or less of C, and 0.3 wt% or less of Si.

1 7. The field emission display device of claim 1, wherein the thermal expansion
2 coefficient of said mesh grid is in the range of $9.0 \times 10^{-6}/^{\circ}\text{C}$ to $10.0 \times 10^{-6}/^{\circ}\text{C}$.

1 8. The field emission display device of claim 1, wherein electron emission assembly
2 comprises a cathode and a gate and an electron emission source.

1 9. The field emission display device of claim 9, wherein said gate is arranged on an
2 upper side of said cathode.

1 10. The field emission display device of claim 9, wherein the gate is arranged on a
2 lower side of said cathode.

1 11. The field emission display device of claim 1, wherein an intermediate material is
2 arranged between said electron emission assembly and said mesh grid.

1 12. The field emission display device of claim 1, wherein said intermediate material
2 comprises an insulating material.

1 13. The field emission display device of claim 12, wherein said intermediate material
2 comprises a resistive material.

1 14. The field emission display device of claim 1, further comprising a focusing
2 electrode arranged on said mesh grid.

1 15. A field emission display device, comprising:
2 a first substrate;
3 an electron emission assembly arranged on said first substrate;
4 a second substrate arranged a predetermined distance from said first substrate, said first and
5 second substrates forming a vacuum assembly;
6 an illumination assembly arranged on said second substrate, said illumination assembly
7 being illuminated by electrons emitted from said electron emission assembly; and
8 a mesh grid arranged above said electron emission assembly;
9 wherein said mesh grid is bonded to said electron emission assembly by a frit.

1 16. A method of manufacturing a field emission display, the method comprising:
2 providing a first substrate;
3 arranging an electron emission assembly on said first substrate;
4 arranging a second substrate a predetermined distance from said first substrate to form a
5 vacuum space with said first and second substrates;

6 arranging an illumination assembly on said second substrate, and illuminating said
7 illumination assembly with electrons emitted from said electron emission assembly; and
8 arranging a mesh grid above said electron emission assembly.

1 17. The method of claim 16, further comprising forming said mesh grid of a metal.

1 18. The method of claim 16, further comprising forming said mesh grid of one of
2 stainless steel, invar, and an iron-nickel alloy.

1 19. The method of claim 16, further comprising forming a cathode and a gate and an
2 electron emission source in said electron emission assembly.

1 20. The method of claim 19, further comprising forming said gate on one of an upper
2 an lower side of said cathode.

1 21. The method of claim 16, further comprising forming an intermediate material
2 between said electron emission assembly and said mesh grid.

1 22. The method of claim 21, further comprising forming said intermediate material of
2 an insulating material.

1 23. The method of claim 21, further comprising forming said intermediate material of
2 a resistive material.

1 24. The method of claim 16, further comprising forming a focusing electrode on said
2 mesh grid.

1 25. A method of manufacturing a field emission display device, the method
2 comprising:

3 providing a first substrate;

4 arranging an electron emission assembly on said first substrate;

5 arranging a second substrate a predetermined distance from said first substrate to form a
6 vacuum assembly with said first and second substrates;

7 arranging an illumination assembly on said second substrate and illuminating said
8 illumination assembly with electrons emitted from said electron emission assembly;

9 arranging a mesh grid above said electron emission assembly; and

10 bonding said mesh grid to said electron emission assembly with a frit.